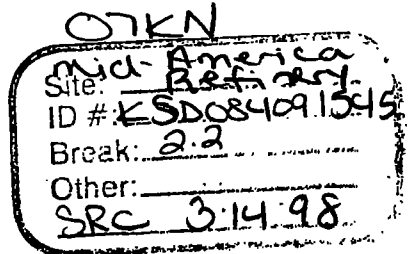


U.S. ENVIRONMENTAL PROTECTION AGENCY
SITE PROGRESS REPORT



I. HEADING

Date: March 14, 1998

From: Janice J. Kroone, On-Scene Coordinator
U.S. EPA, Region VII

To: Paul Nadeau, Director (5203G)
Regions 5/7 Accelerated Response Center

Subject: Mid-America Refinery Company (MARCO)
Chanute, Neosho County, Kansas

Report: #4

II. BACKGROUND

EPA/IAG Identification Number: RW69952132-01-0
FPN: 088040
Contract Number: 68-S7-7001
Order Number: 0013
Response Authority: OPA
State Notification: KDHE Notified
Date IAG Signed by Coast Guard: December 29, 1997
Date IAG Signed by EPA: February 3, 1998
Mob Date: February 17, 1998
Demobilization Date: N/A
Completion Date: N/A

III. SITE INFORMATION

A. Incident Category

Activities at this site are pursuant to Section 311(c) Federal Water Pollution Control Act (FWPCA), as amended by the Oil Pollution Act of 1990 (OPA), Public Law 101-380, in accordance with the National Contingency Plan (NCP).

This site is an inactive oil refinery located north of a residential area.

B. Site Description

1. The Mid-America Refinery Company (MARCO) located in Neosho County, Kansas, north of the city limits of Chanute, is a 25-acre abandoned oil refinery. This facility operated as a crude oil processor from 1934 until it was shut down in February 1981. During full production, MARCO processed approximately 2,800 barrels per day of crude oil stock. This stock was refined

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Superfund

into diesel fuel, jet fuels, gasoline, oil and kerosene. The remaining crude bottom products were used to make asphalt.

Residential property lies immediately to the south and west of the facility and commercial properties border the east and north boundaries. Approximately ten residences and seven businesses are located across the street within 200 feet of the refinery. Surface runoff from the site flows into an ephemeral tributary, which empties into the east-west trending Village Creek, which is part of the Neosho River Basin. The Neosho River is the primary source of drinking water for the City of Chanute.

Portions of this site are located in a flood plain. Over the history of this site, flood waters have covered a portion of the property on at least four occasions. Most recently in the spring of 1994.

During the seventeen years the refinery has been closed, the tanks have continued to rust and degrade. No maintenance, corrosion control, leak testing, etc., has been done to maintain the integrity of these tanks. Old operation records of the refinery indicate throughout its operations a substantial amount of petroleum product had spilled or leaked out through poor operational practices or poorly maintained equipment, piping and tanks. Numerous tanks have no berms around them to serve as secondary containment in the event of any spills or tank failures. There is evidence in the oily water around some of the tanks that do have berms, that the tank contents have leaked out. This has caused extensive soil contamination around and under the tanks. Salvagers have further destroyed numerous tanks by cutting off tank tops and leaving product in the bottoms of the tanks, causing the contents to overflow onto the ground. None of the tanks on-site are serviceable due to their deteriorated condition.

2. Description of Threat

The deteriorated condition of the tanks and the eroded underground and aboveground piping, all of which still contain petroleum materials, as well as the oil-contaminated soils continually discharge into an ephemeral tributary, which empties into Village Creek and eventually into the Neosho River, which is the habitat of the "Kansas Madtom," an endangered fish species. This discharge is considered a threat to public health and the environment.

Multiple threats are posed to human health and the environment from petroleum-based fires at the site. The most obvious hazards involved in petroleum-based fires is the intense heat, open flame and smoke inhalation. Fires can also mobilize and release a number of toxic compounds, which threaten both on-site personnel and persons living or working nearby. During

previous sampling events, some of the tanks were found to contain explosive vapors; an explosion could be disastrous given the proximity of residences and businesses to the site.

Petroleum materials contain aliphatic hydrocarbons, paraffins, tars and aromatic hydrocarbon compounds. The health effects associated with petroleum are those of its associated hydrocarbon mixtures. The aliphatic hydrocarbons are less toxic than the aromatic hydrocarbons, such as the benzene-related compounds (benzene, ethyl benzene, toluene, and xylene). Among the aromatic compounds also are a group known as the Polycyclic Aromatic Hydrocarbons (PAHs), which may cause skin and eye irritation. Some, such as benzo(a)pyrene, are carcinogenic. Dermatitis, eye irritation, liver and kidney damage, central nervous system effects, hematopoietic effects, and carcinogenic effects are generally associated with the aromatic constituents of petroleum.

Another chemical of particular concern at this site is benzene. Benzene is a natural component of crude oil and refined petroleum products. Benzene can enter the human body when breathing contaminated air, when ingesting contaminated food or water, and by skin contact with contaminated environmental media. Benzene is a known human carcinogen. Benzene has numerous adverse health effects, including cancer, leukemia, aplastic anemia, chromosomal damage, blood-forming cell decrease, embryonic death, arrhythmia, and nausea.

Benzene is partially soluble in water, can be carried by precipitation deep into the soil and can contaminate underground water. The Maximum Contaminant Level (MCL) for this compound is 5 micrograms per liter (ug/l) in drinking water. There is a 1 E-4 cancer level of 100 ug/l, which is the level at which one person out of 10,000 is expected to develop a carcinogenic response in excess of that expected in the population. Use of the groundwater for domestic purposes can cause adverse health effects by ingestion when used for drinking or cooking purposes; dermal contact and absorption from bathing or showering; or inhalation from breathing the volatilized vapor from benzene entering the home by showering or cooking activities.

Other components of petroleum products include ethyl benzene, toluene and xylene.

Ethyl benzene causes adverse reproductive effects, and is a skin and eye irritant at high concentrations.

Toluene can cause decreased fetal weight and embryonic death. Acute exposure may produce central nervous system depression, narcosis and cerebellar degeneration..

Xylene affects the central nervous system and irritates mucous membranes at high concentrations.

C. Previous Site Actions

1. Investigative History

The Kansas Department of Health and Environment (KDHE) conducted a preliminary assessment/site investigation (PA/SI) of the site in 1986. Field work associated with the PA, conducted on February 2, 1986, visually identified several areas of possibly contaminated soil near the oil/water separator unit and pools of hydrocarbons, apparently from leaky valves and/or pipes, scattered throughout the site.

Field work associated with the SI, conducted in September 1986, included ambient air monitoring for organic vapors and explosive atmospheres; installation of four on-site monitoring wells; ground water well sampling; limited sampling of on-site soil, sediment and sludge; and surface water sampling. The SI did not include an assessment of the buildings or their contents. The SI indicated that groundwater contamination, composed of refined petroleum products, was migrating in a southeastwardly direction, following the groundwater flow beneath the site. On-site surface water runoff flowed easterly, toward Highway 169, and accumulated along the eastern edge of the property. Surface water samples indicated the presence of hydrocarbons. Surface soil contamination was visible throughout the site; analysis indicated soils in stained areas to be heavily saturated with hydrocarbons.

In conjunction with the SI, a tank evaluation survey was conducted by KDHE. The survey indicated approximately 40 percent of the tanks had inadequate secondary containment.

On October 9, 1992, KDHE visited the site and conducted a limited inventory of potentially hazardous substances remaining in the on-site buildings. Results indicated that numerous marked and unmarked containers holding various substances were located throughout the buildings. Many hazardous substances, including corrosives, flammables and poisons were found. Buildings were in a dangerous state of decay and fully accessible to the public. Fencing at the site was inadequate and in some areas in a state of disrepair.

On November 16-18, 1992, EPA and Ecology and Environment's Technical Assistance Team, conducted a site assessment. The assessment included documentation of site conditions; an inventory of all containers inside buildings; collection of ground water samples from on-site monitoring wells; surface water samples from an off-site drainage ditch and from the oil/water separator system; and soil, debris, sediment and sludge samples

from the site. Field screening found asbestos materials in pipe wrap and tank insulation. The assessment found that excessive runoff and pools of oily water were observed throughout the site during heavy precipitation. Floor sweepings composited from floors of the on-site laboratories found extensive mercury contamination. Most of the abandoned drums found on-site were rusted and leaking. Materials in the drums were found to be RCRA hazardous waste. No PCBs were detected in samples collected on-site. Volatile organic compounds (VOCs) associated with petroleum products were detected in the ground water sample, with benzene showing the highest concentration at 972 ug/l. On-site soil and sludge samples collected from the holding pond indicated total petroleum hydrocarbons (TPH) with the highest concentration of 165,400 milligrams per kilogram (mg/kg).

2. Past removal actions

On July 9, 1994, an action memorandum was signed by EPA. EPA began the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) clean-up in August 1994, and the action was completed in March 1995. This removal cost approximately \$1,192,731. The CERCLA removal included the following actions:

Vandals had broken mercury thermometers and gauges in several laboratory buildings on-site creating extensive mercury contamination in these buildings. Mercury contaminated waste was removed from these buildings and air monitoring was accomplished. Air monitoring results indicated that established clean-up levels were achieved. Two hundred and twenty six gallons of D009 waste was transported from the site and disposed.

The oil/water separator was excavated and the sludge was mixed with fly ash and shipped off-site to an approved disposal facility. A total of 476 tons of F037 waste was removed from the site. The oil/water separator was backfilled with clean fill dirt.

All laboratory chemicals and drums of hazardous waste that were found abandoned throughout the site were sampled, appropriately containerized for shipping, profiled and disposed at an approved disposal facility. This includes the following wastes and quantities: D001(ignitable) - 2,055 gallons; D002 (corrosive) - 440 gallons; D008(lead) - 5 gallons; D007(chromium) - 5 gallons; D015(Toxaphene) - 5 gallons; and D023(o-cresol) 10 - gallons.

Asbestos containing material(ACM) was abated from tanks, cracking towers, piping and boilers by a state of Kansas certified company. A total of 1,320 cubic-yards of asbestos was removed from the site and transported to an approved landfill.

The contents of all tanks were sampled and it was determined one tank contained approximately 300 gallons of ignitable hazardous waste (D001). This material was pumped into 55-gallon drums and transported to an approved disposal facility.

The remaining tanks contained petroleum materials which could not be included in the CERCLA removal action due to the CERCLA petroleum exclusion provision. EPA left 138 tanks on-site, fifty-nine of which contained petroleum related materials.

After the CERCLA clean-up was completed, Robert Moore, the trustee of the Robert Cooley Trust fund which owns the property, obtained the services of numerous scrap metal salvagers. These individuals scrapped 110 tanks and associated piping and discharged much of the contents onto the ground. Due to their scrapping efforts, tops and sides of tanks were cut off which has allowed rainwater to collect in the tanks and the petroleum materials to directly discharge onto the ground. Because the site sits on a steep hill, run-off from rain events allow these petroleum materials to discharge indirectly into the Neosho River.

Also during scrapping activities, the use of cutting torches to salvage steel from tanks and piping repeatedly started fires igniting petroleum products remaining in the tanks and piping. Sometimes fires were intentionally set in the tanks to burn out the tank contents so the tanks could be more easily salvaged. The Chanute Fire Department responded to approximately nine fires at the site during the period from August 1995 to October 1996. During one fire, on October 15, 1996, 50 gallons of oil had drained across the road and caught on fire which in turn caught a tank on fire. This fire burned out vegetation from a wetlands area. Residents three miles north of the site were concerned about smoke from the fire.

In November 1997, KDHE fenced the west side of the site to restrict access to the property.

IV. RESPONSE INFORMATION

A. Situation

1. Current Situation

This pollution report covers the period from March 8-14, 1998. A snow storm the evening of March 8, 1998, caused treacherous driving conditions. The site was covered with snow most of the week. Temperatures this week began in the twenties with windchills in the teens. By the end of the week temperatures were in the high 50s.

A representative from KDHE visited site.

2. Removal Activities to Date

Due to weather conditions, muddy roads at the site were groomed.

Tanks 20, 38, 47, 60, 65, 66, 67, 68, 69, 74, 75 and 77 have been taken down and moved to a staging area. All were in deteriorated condition.

An access road was built to tank 48 in order to accomplish sludge removal.

The site has been divided into nine zones. Pipes in zones 2, 3, 8, and 9 have been removed to a salvage pile.

3. Enforcement

In May 1993, the Robert Cooley Trust purchased the MARCO site. Robert Moore is presently the trustee. In 1994, EPA attempted to negotiate with the current owners of the site for a Consent Order in which they would undertake all time-critical removal actions necessary at the site. Negotiations for the Responsible Party (RP) to perform the clean-up were unsuccessful, therefore EPA conducted a CERCLA time-critical removal from August 1994-November 1994. In March 1995, the original action memorandum was amended to include disposal of ignitable hazardous waste from a tank. The PRPs were once more contacted to perform that portion of the removal. The PRPs again refused and EPA performed the remaining removal action.

On October 28, 1996, EPA issued a Unilateral Administrative Order, ("UAO"), pursuant to Section 7003 of the Resource Conservation and Recovery Act, ("RCRA"), 42 U.S.C. 6973, to Respondents requiring them to cease their current activities at the site related to the dismantling of tanks and piping, and requiring them to install a fence around the site, inventory all tanks and piping and prepare a plan for EPA approval to safely dismantle all existing tanks and exposed piping at the site. EPA took this measure only after determining there may be an imminent and substantial endangerment to human health and the environment because of the release and discharges, or threatened release and discharges, of oil and hazardous and/or solid waste from the site.

In March 1996, EPA requested assistance from the Department of Justice in enforcing the 7003 Order, and potentially obtaining a Temporary Restraining Order (TRO). In April 1996, a Department of Justice (DOJ) attorney visited the site, interviewed the fire department, EPA and KDHE personnel. DOJ concluded that since no salvaging operations were ongoing at the time, DOJ would not pursue the TRO.

B. Next Steps

Tanks will continue to be removed from their present locations to a staging area. Metal will be removed from the site to gain access to contaminated soils. Metal recyclers are being contacted for removal of metal from site. Any monies received from this effort will go back into the project budget.

All underground and above ground piping will continue to be checked to see if they still contain petroleum materials. Piping found to contain materials will be marked. Appropriate caution will be taken when tanks are removed around this piping to ensure no materials are spilled. Piping will be removed and staged.

Water located in the tank berm areas will continue to be vacuumed up and hauled to the holding pond.

Options for tank content removal and disposal are being investigated.

It is anticipated petroleum contaminated soils will be excavated, solidified and disposed off-site.

The site will be regraded and reseeded to control water runoff from the site.

C. Key Issues

None

V. COST INFORMATION (as of March 14, 1998)

A. Extramural Costs

1. ERRS Contractor

| | |
|--------------------------------------|-----------|
| Current Amount in Delivery Order | 1,719,880 |
| Costs to date (not including awaits) | 152,239 |
| DELIVERY ORDER CEILING BALANCE | 1,567,541 |
| PERCENT OF ERRS FUNDS REMAINING | 91% |

2. START Contractor

| | |
|----------------------------------|---------|
| Current Ceiling | 285,120 |
| Costs to date | 18,960 |
| CEILING BALANCE | 266,160 |
| PERCENT OF START FUNDS REMAINING | 93% |

| | |
|----------------------------------|-------------|
| TOTAL EXTRAMURAL CEILING | \$2,005,000 |
| TOTAL EXTRAMURAL COSTS TO DATE | 171,299 |
| TOTAL EXTRAMURAL CEILING BALANCE | \$1,833,701 |

B. Intramural Costs

| | |
|---|-------------|
| Current Ceiling | 188,640 |
| Actual Costs to date | 9,559 |
| TOTAL INTRAMURAL CEILING BALANCE | \$179,081 |
| TOTAL PROJECT CEILING FROM COAST GUARD IAG | \$3,536,290 |
| TOTAL EXTRAMURAL AND INTRAMURAL COST TO DATE | 180,858 |
| TOTAL PROJECT CEILING REMAINING | \$3,355,432 |

The above accounting of expenditures is an estimate based on figures known to the EPA OSC at the time this pollution report was written. It reflects EPA costs incurred on-site.

VI. DISPOSITION OF WASTE

No materials have been removed from the site at this time.

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|------------------------------|----------------------------|
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